

**FIRE STATION DESIGN AND CONSTRUCTION**  
**IN CONSIDERATION OF THE AMERICANS WITH DISABILITIES ACT (ADA)**  
**AND PRIVACY AND ACCESS**

EXECUTIVE LEADERSHIP

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An applied research project submitted to the National Fire Academy  
as part of the Executive Fire Officer Program

March 2000

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## INTRODUCTION

The Los Angeles County Fire Department (Department), located in Southern California, is a large and diverse fire service organization serving over 3.5 million residents. It is responsible for fire and life safety emergency services for the unincorporated areas of Los Angeles County and currently serves 54 of the 88 cities within the County on a fee-for-service basis. There are plans and pending approvals underway at this time for the addition to the Department of three more cities and their fire departments.

The jurisdiction of the Department is spread over 2,280 square miles which includes the ocean shoreline and coastal mountains of the Santa Monica Mountains containing the City of Malibu and stretches to the high desert of Antelope Valley in the north. The Department also serves Catalina Island located approximately 26 miles offshore and the initial action response zone of the steep and mountainous San Gabriel Mountains of the Angeles National Forest located in the middle of the County. Development and growth continues in the metropolitan, urban and rural areas that include residential, commercial and industrial properties and an extensive wildland urban interface.

The Department meets the needs of the public with a force of just over 4,800 employees that includes; uniformed firefighting, ocean lifeguard, helicopter pilot, heavy equipment operator and forestry personnel as well as a vast array of non-uniformed personnel that include administrative, clerical, information and computer management, communications, construction/maintenance and health hazardous materials specialists.

The proposed budget for the 2000-01 fiscal year is approximately \$551 million to provide a variety of services of firefighting, emergency medical services (EMS) including paramedic service, hazardous materials response and mitigation enforcement, fire prevention, urban search and rescue, FEMA Task Force, fire investigation, helicopter air operations for wildland firefighting and EMS/technical rescue as well as ocean rescue. These missions are currently based out of 149 fire stations with the pending addition of 8 more for a total of 157, 11 suburban and rural located fire camps, various lifeguard stations, helibases and a variety of other facilities and structures.

The writer is currently an assistant fire chief and is assigned as the manager of the Department's 47-member Construction and Maintenance Division responsible for all facility maintenance, remodels and new construction. This assignment of the writer coincides with an effort by the Fire Chief to reorganize and to improve the operations of the Construction and Maintenance Division to better meet the facilities needs of the Department.

## PROBLEM

The Department is on the verge of a major construction boom to remodel existing fire stations, build new stations to replace aged existing stations and to provide additional new stations for service in high population growth areas within its jurisdiction. As a result of the 1990 federal legislation of the Americans with Disabilities Act (ADA) and state laws regarding privacy and access of the work place, the Department is faced with incorporating these legislative mandates into its future construction projects.

## PURPOSE

The purpose of this research project is to determine the current requirements of the existing legislation and to analyze the direct impact on the remodel and new fire station construction of the Department. The research for this project will provide the writer with the information to develop and implement the findings into the future construction plan of the Department.

## RESEARCH METHODS AND QUESTIONS

The research and results are related to the course content of *Executive Leadership*, Unit 8: “Developing Decisionmaking Skills”. Historical, descriptive and evaluative research methods were used to answer the following questions:

1. How has the Department been designing and building remodels and new fire stations since the 1990 legislation of the ADA? [Historical]
2. How has the Department been designing and building remodels and new fire stations since the need to address the privacy and access issue? [Historical]
3. How are the construction issues of ADA and privacy and access being met in the American fire service? [Descriptive]
4. How is the Department’s current fire station design program meeting the requirements of the ADA and privacy and access issue? [Evaluative]

## **BACKGROUND AND SIGNIFICANCE**

### **BACKGROUND**

Remodels: Through the years the Department has dealt with the issues of remodels of existing fire stations strictly based on need and available funding. High use areas of fire stations requiring refurbishment or remodeling have included kitchens with dining areas, bathrooms, and to a more limited degree the office area. For this project, refurbishment and remodeling are the same and are defined as the replacement of existing countertops and appliances with refacing of existing cabinets, new flooring, either ceramic tile or sheet vinyl, painting and window coverings as needed. An extensive refurbishment/remodel would include the total replacement of cabinets, furniture, and fixtures, and as necessary the removing of any interior dividing walls to expand an area.

In order to maximize the planned lifetime of 50-70 years for existing Department stations, it has been the practice of the Department to attempt kitchen remodels every 20-25 years and bathrooms every 15-20 years (D. Myers, personal communication, 1999). Office remodels have usually been initiated as a result of an assignment of an additional company and its officer to a previous single company station and/or the addition of a paramedic squad necessitating an additional report writing/personal computer workstation/filing area. Due to the increased use of electronic office and communication equipment in the past 15 years; the majority of all of the Department's stations have been adapted for the increased electrical service required.

New Construction: Fire station construction was completed on an as-needed basis over the 75 year history of the Department as the fire and life safety service needs

of the public grew and as older stations had to be replaced due to age and/or limited size. The Department's fire station designs have varied over the years based on the predominant use of different architects each time a station was funded to be built based on the political districts of the Departments' elected directors. In practice, the architect was selected from the district in which the station was to be built, causing a different architect and design for every new station being built within the same district.

There have been times when a particular exterior design and floor plan trend was repeated in new station construction such as in the 1970's and more recently a few stations in the late 1980's to early 1990's. There have only been six stations completed in the past eight years typically following an unwritten concept of a single-story station with usually a two-bay/two-deep apparatus room as the center of the station with all residential functions: dormitory, lockers, showers/toilet rooms and a physical fitness workout room on one side of the apparatus room. The office, library, dayroom, dining and kitchen areas are located on the other side of the apparatus room.

Until the current assignment of the writer, there has been no concerted effort on behalf of the Department to address the federal legislation and accessibility criteria of the ADA and the California regulations requiring privacy and access for employee toilet, shower and changing areas.

## SIGNIFICANCE

The Department is experiencing unprecedented annexations of existing city fire departments into the Department as well as a boom in population growth within the County and the unincorporated jurisdictions that it serves. A recent Departmental

memo (L. Miller, personal communication, March 9, 2000) distributed within the Department to provide an update on fire station construction projected that an unprecedented estimate of 35 fire stations will have some aspect of land acquisition, planning, design, construction and/or occupancy within the next five years.

Actual design, construction and occupancy are expected to occur for approximately 15 stations within this five-year period. This new construction will be in addition to approximately 30 scheduled remodels including kitchen and shower/locker room and dormitories. These construction projects will be an expenditure of several million dollars by the Department for facilities and need planning in order to provide new and remodel construction.

This funding for this unprecedented rate of remodel and fire station construction is a result of increased revenues to the Department from an increased tax base and the success of a “benefit assessment” ballot measure in 1997. With a new commitment by the executive leadership of the Department to modernize and add fire stations, it is necessary for the Department to develop and maintain a building design program whose standards meet criteria for function, health, safety and all legal requirements such as ADA and privacy and access.

The research and results are related to the course content of *Executive Leadership*, Unit 8: “Developing Decisionmaking Skills”. This unit discusses the concepts of leadership decision styles and introduces a “decision styles flow chart”, the use of case studies to demonstrate varying combinations of individual (leader) decisionmaking to the extreme of “group-think”, and the rationale of the decisionmaking model. As stated during the presentation of this unit, the quality of decisions, time to

make decisions, or the lack of it, and acceptance or commitment of subordinates to execute are critical elements involved with this process (A. Connors, personal communications, July 19, 1999).

The writer as the Department's manager assigned to facilities needed to assess the current situation regarding the Department's lack of design standards and the need for compliance with ADA and privacy and access, although these are only two aspects of station construction. With the Department's ambitious construction plan ahead as well as the expense of these projects to consider, the writer balanced the decisionmaking with using input from subordinates, consultants from outside of the Department and research for this project in which to base decisions on to formulate a construction plan. This method as presented in Unit 8, uses the "consulting" style and is validated by the "diagnostic questions for decisionmaking" (National Fire Academy, 1999, p. SM 8-5; p. SM 8-11, p. 8-13). The goal was to develop the elements of a design plan crucial to cost effective construction for the fire stations and compliance with federal and state legislation.

## **LITERATURE REVIEW**

### **Overview**

The literature review for this project was focused on the requirements, both federal and state, that would have an impact on the remodels and new construction of fire stations based on the issues of the ADA and privacy and access. The first section will cover the ADA and the second section of the literature review will cover privacy and access. The emphasis for the ADA portion of the research involved the interior rooms

of the fire stations due to the Department having already developed and begin the process of completing ADA vehicle parking stalls, pathways and building access.

### **Americans with Disabilities Act (ADA)**

The National Council on Disability is the federal agency that in 1986 first proposed to the President of the United States and Congress what was to become the Americans with Disabilities Act (National Council on Disability, 1995, January).

President George Bush signed the ADA into law on July 26, 1990, with the requirements being phased in through 2010 (Department of Rehabilitation [DR], 1997). “The ADA requires equal opportunity for individuals with disabilities in government and private sector employment and services, and bans discrimination on the basis of disability” (DR, 2000). The ADA prohibits discrimination based on disability in employment, public accommodations, government services, transportation and telecommunications (Thompson Publishing Group, 1999, November).

In relation to other federal and state laws, ADA Title II is designed to provide protection for individuals with disabilities at a greater or equal level of any other laws, however it does prevail over any conflicting state laws (DOJ, 1994, p.5). According to the ADA Compliance Guide (2000), the relationship between state and local laws and the ADA is as follows:

In addition to the ADA, public entities must comply with any state or local law that prohibits discrimination on the basis of disability. Compliance will not necessarily satisfy the requirements of any state or local statute. States or localities are not required to change their laws to conform to the ADA.

However, the ADA will apply in situations where state or local statutes provide less protection than the federal law (Tab 800, p. 10).

## ADA in Detail

The Act includes five titles as follows:

Title I	–	Employment
Title II	–	Public Sector Services
Title III	–	Private Sector Services
Title IV	-	Telecommunications
Title V	-	Miscellaneous Provisions

There are two subtitles to Title II, with Subtitle A intended for program and services accessibility and delivery, and Subtitle B pertaining to public transportation issues (United States Department of Justice [DOJ], 1994).

The title that has most application to this project regarding remodels and new fire station construction is Title II – Public Sector Services. The ADA: A Comprehensive Overview (DR, 1997) document states:

The public sector is obligated to have “program access” whether or not specific facilities are physically accessible. Governmental agencies are required to make “readily accessible and useable” all public facilities on which construction or alteration was begun after January 1992. However, they are not required to make existing facilities accessible unless there is no other feasible means for achieving program access (p. 10).

The use of a Self-Evaluation Plan and Transition Plan(s) are part of the public sector's role including the fire service, to incorporate the ADA into its services, programs and facilities (HAW, 1977). The Self-Evaluation Plan is to identify all policies, programs, services or activities, and practices of the public agency and be evaluated against the ADA requirements.

The Transition Plan deals with any structural modifications required achieving program access by the removal of barriers. The Transition Plan will list physical structural barriers that limit access to physically handicapped individuals, and detail the methods used to remove these barriers to public sector programs and services. A time schedule to complete modification and any interim steps to achieve program access are also to be included. Transition Plans were to be developed by July 26, 1992, and structural changes made to existing buildings to meet accessibility by January 26, 1995 (United States Architectural and Transportation Barriers Compliance Board [Access Board], 1994).

The focus of ADA compliance for Title II is the intent to improve accessibility for programs and services by the public sector. For the fire service the argument could be made that the majority of programs and services provided by the fire service are for emergencies and as such, the services are taken to the people in the role of first responders.

There are two areas of the ADA that are not part of this project and apply to Title II. Communications system requirements such as 911 and the use of Telecommunications Devices for the Deaf (TDD's) which are part of the ADA, and any

public sector, including the fire service employment of ADA covered individuals such as clerical, administrative/clerical, analysts, dispatchers, etc.

From a facilities standpoint that would only leave non-emergency programs and services at fire service facilities such as tours, presentations and classes that need to be concerned about ADA facility requirements.

In the development of the final language of the ADA, Congress attempted to resolve the matter in two approaches. The first was to require only readily achievable accessibility changes in existing buildings, and the second to require that any alterations to new construction be readily accessible and usable by individuals with disabilities.

This criteria of readily accessible and usable is also defined as “the degree of ease with which an individual with a disability can enter and use a facility; it is access and usability which must be “ready”. While readily achievable focuses on the degree of ease or difficulty in removing a barrier; if barrier-removal cannot be accomplished readily, then it is not required (Wehman, 1993). Barrier removal to be readily achievable is to be determined on a case by case basis with factors including; the nature and cost, the overall financial resources of the site and the relationship of the site with any other sites of the same entity (DOJ, 1996, August).

The United States Architectural and Transportation Barriers Compliance Board known as the Access Board expanded its mission with the enactment of the ADA and is responsible for the Architectural Barriers Act of 1968 and Section 502 of the Rehabilitation Act of 1973. All three of these laws are based on building an accessible environment for all people (Access Board, 1994).

The Access Board is responsible for developing and maintaining accessibility guidelines for entities covered by the Act and for providing technical assistance to individuals and organizations on the removal of architectural, transportation communication barriers (Access Board, 1994). This publication, which will be discussed later in this project, is known as the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).

These guidelines from the Access Board are only that, and are not binding as is the information provided by the Board's Technical Assistance Helpline (Access Board, personal communication, March 29, 2000). However, when adopted by the enforcement agencies of the Department of Justice, Title II Subtitle A, and Department of Transportation, Title II Subtitle B, as standards, these guidelines and other input such as policy letters and court cases become the enforceable body of the ADA (Access Board, 1994).

## Enforcement

The ADA is a comprehensive civil rights act for people with disabilities and was modeled after the Civil Rights Act of 1964 and the Rehabilitation Act of 1973 (DR, 1997). Since violations of the ADA Title II are considered civil rights discrimination, if violations are not able to be resolved at the local level, formal complaints are to be submitted to the United States Department of Justice – Civil Rights Division (DR, 1997). The Department of Justice states in regards to enforcement (1999, July-September):

Through lawsuits and both formal and informal settlement agreements, the Department of Justice (DOJ) has achieved greater access for individuals with

disabilities in hundreds of cases. Under general rules governing lawsuits brought by the Federal Government, the DOJ may not file a lawsuit unless it has first unsuccessfully attempted to settle the dispute through negotiations. The DOJ may file lawsuits in Federal court to enforce the ADA and may obtain court orders including compensatory damages and back pay to remedy discrimination. As of September 29, 1999, the limit on possible penalties has been adjusted upward for inflation to \$55,000 for the first violation and \$110,000 for any subsequent violation. The DOJ resolves numerous cases without litigation or formal settlement agreement. In some instances, the public accommodation, commercial facility, or state or local government promptly agrees to take the necessary actions to achieve compliance. In others, extensive negotiations are required (p. 2).

The DOJ has as its primary goal for enforcement an attitude to increase voluntary compliance through technical assistance and negotiation. In fact, under current rules, the DOJ may not file a lawsuit unless it has first tried to settle any disputes through negotiations and as such, most all complaints are settled prior to federal court cases being filed (DOJ, 2000).

### New Construction and Alterations

New construction and alterations to existing buildings, which includes remodels, “for the use of a public entity must be readily accessible and usable by individuals with disabilities, if the construction or alteration is begun after January 26, 1992” (DOJ, 1994, p. 23). The term readily accessible and usable means that the facility must be

designed, constructed, or altered in strict compliance with a design standard (DOJ, 1994, p. 23).

Some leeway is permitted for existing buildings in that public entities do not necessarily need to make all of their existing facilities accessible. Program accessibility may be provided by altering other existing facilities, acquisition or construction of additional facilities, relocation of a service or program to an accessible facility or the provision of services at alternate sites (Government Information Department [GID], 1997, May).

Title II requirements do not require a public entity to make structural changes to existing facilities when compliance, access, can be met with other cost-effective methods. (United States Commission on Civil Rights, [USCCR], 1998, September; Access Board, 2000). Additional non-structural methods of achieving program accessibility include; redesigning equipment, assigning aides to beneficiaries, or accessible conveyances (Thompson Publishing Group, 2000).

Specifically, fire departments must make their programs accessible to the general public. This may require making physical changes to existing facilities or provide services at alternate sites as described above. Tours can be provided in existing facilities that are accessible, or audiovisual displays can be held in an accessible location on the ground floor (USCCR, 1998, September). This key point for fire departments is that their programs be accessible, not necessarily all of their facilities (DOJ, 2000).

The ADA does require for all new buildings constructed by a state or local government that they be accessible according to either of the two design standards.

Whenever a state or local government undertakes alterations to an existing building, it must make the altered portions accessible (GID, 1997).

## Design Standards

At the time of this writing there are two design standards available, Uniform Federal Accessibility Standards (UFAS) or the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG). The UFAS has been applied to all federal facilities and to entities that receive federal funding. It is anticipated that the UFAS will be dropped as a design standard for public entities at the adoption of proposed rulemaking underway at this time (DOJ, personal communications, March 27, 2000). The UFAS will not be discussed any more for this project due to its probable demise and the current use of the ADAAG within the State of California.

All newly constructed fire stations should be constructed to one of the above design standards. Although fire stations are built for first responders, the stations currently under design and to be constructed in the United States will have to comply with accessibility standards for kitchen, dormitories, libraries, laundry rooms, meeting rooms, etc., particularly when such facilities are used by non firefighters. In other words, although fire stations may be designed and built with the able-bodied work force of first responders in mind, no one may be denied access to these parts of a station because of a disability (USCCR, 1998, September).

The ADAAG addresses in detail the requirements to be met in facility construction in order to be in compliance with the ADA including but not limited to; work

areas, building additions, parking, signs, entrances, water fountains, storage and shelves, assembly areas, bathrooms, historic buildings and residential facilities. Work area requirements apply to those areas “used only by employees as work areas be designed and constructed so that individuals with disabilities can approach, enter and exit the areas” (DOJ, 1994, p. 23).

Although this will limit certain applications of the ADAAG to fire station construction, the issue of the amount of access to be provided throughout a fire station remains. One limit to the applicable design standards as stated in the ADAAG (DOJ, 1994, p. 23) is that any “alterations to primary function areas (where major activities take place) trigger a “path of travel” requirement, that is, a requirement to make the path of travel from the entrance to the altered area—and telephones, restrooms, and drinking fountains serving the altered area – accessible”.

A public entity is not required to make this altered path of travel accessible if this alteration costs more than 20% of the cost of the original alteration even if this cost limitation results in less than full accessibility (DOJ, 1994). Another condition if the ADAAG is used is that for Title II entities, elevators are required for two floors and cannot be waived as in some private building projects.

The ADAAG is currently under review and going through a proposed rulemaking change with the original public comment period to end in March, 2000, which has now been extended to May 15, 2000, (American Institute of Architects [AIA], 2000, April). This will be an extensive revision and updating of standards since its first issue in 1991 (AIA, 1999, July). The AIA (2000) states that “a major objective of the recommendations is to ensure that the ADAAG remains a state-of-the-art document that

is generally consistent with technological developments and changes in national standards and model codes, while meeting the needs of individuals with disabilities (p. 1).

As in the original ADA and ADAAG, the proposed rule does not address fire stations specifically. There are some revisions dealing with limits of structural alterations with historical buildings, which could include fire stations, and possible limits based on structural impracticability in new construction if terrain would prevent the inclusion of accessibility features (DOJ, 2000).

#### ADA and California State Law

This project and its results are to be applicable to the writer's Department construction program with the intent of researching the ADA and ADAAG and its application within the State of California and more specifically the County of Los Angeles. Others will need to research their own state laws and the application and coordination with the ADA and ADAAG.

Although getting closer and closer to meeting the ADA and ADAAG standards, the California Code of Regulations, Title 24, regarding access, remains far from reaching those more stringent degrees of compliance (Gibbens, 1998). In order to cover the difference of current California law and the ADA, the California Civil Code was revised in 1992 to state "a violation of the rights of any individual under the (ADA) shall also constitute a violation of this section (Title 24)" (Gibbens).

The 1998 California Building Code is the current code for construction standards in the State. Chapter 11, Accessibility - Section 1105B.3.3 addresses 36 inch wide

clear access in employee work areas. Section 1105.3.5, specifically addresses what areas of fire stations, along with police department, law enforcement and courtroom facilities must be made accessible. These include; office areas, conference rooms, and classrooms, dispatch rooms and similar areas, along with sanitary facilities (California Building Standards Commission, 1998). This list mirrors the ADAAG requirements for public service facilities that include fire stations although fire stations are not specifically listed.

For inclusion into an accessibility checklist for existing and new construction for fire stations are the following, deemed as government facilities critical sites; parking areas, entrances, loading/unloading areas, lobbies, information areas, administrative services, public bathrooms, outside landscaped areas, meeting and conference rooms and administrative offices (Kearney, 1995).

### **Privacy and Access (UNISEX)**

This portion of the literature review is related to the past practices, history and development of the facilities issues related to male and female firefighters sharing fire stations. The concept known as privacy and access is the facility separation of people to lockable and visually private rooms for changing clothes, toilet and shower use. For this project and as the term used by the writer's Department for this aspect of construction, the term Unisex is used for brevity and concept description.

The organizational culture change throughout the American fire service that brought about the need for this change in fire station construction was the inclusion of female firefighting personnel. Women began to be hired as career/professional

firefighters in the American Fire Service in the mid to late 1970s with approximately 300 female firefighters by 1979 (Federal Emergency Management Agency [FEMA], 1993, January). This new hiring practice eventually caused women to be assigned to shift work at conventional older style fire stations throughout America.

It appears that the issue of privacy and access in station design has taken a long time to take hold in the American fire service. Even a progressive fire station design article that appeared in a fire service trade magazine article in 1980, did not readily address the design issues for separation of the sexes for personal toilet, bathing and sleeping activities (Wabich, 1980, February). Silvestri's applied research project in 1992 only briefly, and not specifically to design concepts, referred to the idea of privacy for personnel based on the "human need" (Silvestri, 1992, p. 10).

A 35-person survey served as the basis for a 1994 applied research project about co-ed fire station facilities. At the time of the survey, 60% of the respondents stated their departments, career and volunteer, did not have separate or private dormitory facilities. Although minor modifications in the fire stations; curtains, locks and signs, were being done and new construction designs were being developed, 35% of the respondents stated that no changes had been made yet to accommodate women firefighting personnel in the stations (Pokorski, 1994).

### The Need for Adaptation

Due to the lack of individual home-style bathrooms; toilet, lavatory sink and shower, and individual bedrooms in older fire stations, gang or group lavatory basin/shower/toilet/urinal rooms exist as well as group dormitories. Although with men, this

may promote “cohesion and esprit de corps” (Hogan, 1995, p. 298), with combined male and female personnel this creates an uncomfortable situation for females and it can be expected of some male personnel (Willing, 1988-89).

According to a telephone interview with the Women in the Fire Service, Inc., organization located in Madison, Wisconsin, although “not one of the highest woman’s issues in comparison to those of recruitment, employment, maternity policies and promotions; facilities and the need for new construction certainly remain very much a concern (“Anne”, personal communications, March 16, 2000).

In California as in many other states, there is State law that defines the need for separate facilities for male and female employees (FEMA, 1993, January). Although not written specifically for the fire service, the California Labor Code – Section 2350, and the Title 8 - General Industrial Safety Orders, requires that work locations with five or more employees have separate toilet rooms. For less than five, “separate toilet rooms for each sex are not required provided toilet rooms can be locked from the inside and contain at least one water closet” (Barclays, 1993, September, p. 585).

The writer’s Department hired its first female firefighter in 1983. Now a captain, Fire Captain Cindy Barbee, provided the writer early internal memos and anecdotal stories of the early years of the Department’s adjustment to its then approximately 130 fire stations and the beginning influx of female firefighters (Captain C. Barbee, personal communications, March 2000). The Department utilized barrel-style sliding door locks and signage installed at the group-style toilet/urinal/lavatory basin and shower areas of stations to provide privacy between men and women firefighters. The signs were double lined, double slide to indicate male or female, and occupied or vacant.

This method of separation or providing privacy and access continued until the early 1990s when actual partition wall remodels began to occur on a selective basis at stations where any of the still small, but growing number of women firefighters were assigned. In the cases of multiple-company houses where there were separate captains' quarters and those stations that had battalion chief quarters which included private toilet/shower rooms, the women firefighters were provided access to these for use as needed.

This condition of the writer's Department with regards to the lack of toilet/shower areas for privacy and access was not an isolated situation. Chetkovich (1997) found one department that "dealt with the entry of women by buying two-bit plastic shower curtains for the stations" (p. 203).

### Unisex Design

The resulting design for remodel and new construction considerations to address the Unisex issue are as follows: For toilet and bathing; (1) with individual home-style shower/basin/toilet room, or (2) small group style rooms with two to four toilets, showers and lavatory basins for each sex. For sleeping rooms; (1)) individual sleeping rooms with lockers and privacy door locks, or (2) at least two, three-person sleeping rooms with lockers and a privacy door lock sufficient for the staffing at each station. The writer's Department has selected the design of using individual shower/toilet rooms and individual sleeping rooms (see Appendices B and C).

Other fire departments such as the Huntington Beach Fire Department located in Southern California, have selected for their new designs the scaled down versions of

the conventional design of group rooms for the use by each sex. For the toilet/shower rooms, they have designed rooms for two to four personnel for each sex. The sleeping rooms are designated for three to four individuals of the same sex (M. McGrath, personal communication, March 29, 2000; Ely, 1989). According to Mitch Conner of RMW Architecture, “The biggest change we’ve seen in the past 10 years is the idea of using more compartmentalized space – smaller dorm rooms, smaller toilet rooms – and beginning to treat the (fire) station more like a house” (Elliott, 1999, October, pp. 4-5).

The United States military has also had to revise and renovate design features of its facilities to better incorporate the mix of the sexes. The recent completion of the first phase of a \$50 million barracks complex at Fort Hood, Texas, clearly shows the direction of the United States Army. An existing barracks would have an enlisted soldier share a bathroom with 27 other soldiers and walk to a common dayroom to use limited kitchen amenities. The new barracks design has a soldier having a private sleeping room in a suite with a bathroom and kitchen that is shared with one other soldier (Horky, 1998, August).

## Summary

The literature review for this project for remodel and new construction for fire stations identified an extensive amount of sources with regard to the ADA issue and a surprising lack of sources to provide information and current professional analysis of the privacy and access issue. Details will be covered in the Results and Discussion sections of this project.

## PROCEDURES

### **Definition of Terms**

Americans with Disabilities Act (ADA). The federal act signed in to public law on July 26, 1990, that mandated accommodation of persons with disabilities with regard to employment, public entity provided services and programs, buildings and facilities both private and public, telecommunications and assorted other details.

Fire station. For the purpose of this project this term means those fire service facilities that are designed and built for first response personnel of the fire service including operations related specialty services as EMS, hazardous materials, search and rescue, etc. These may include those facilities of volunteer fire organizations; however, the intent of this project is the night-shift, 24-hour shift and daily standby hours of career personnel who are assigned to a particular building(s) for a set amount of hours in a 24-hour period. Often these fire stations are combined with administrative and/or dispatch centers. In these cases, the ADA criteria have other implications, and are not the subject of this project.

Los Angeles County Fire Department (Department). The fire department that the writer is employed by and a member of.

Privacy and Access (Unisex). The concept of separation of male and female to provide privacy for personal activities such as toilet use and bathing. In the fire service this will also include sleeping areas. For brevity of text and description of this concept, the term Unisex is also used.

## **Research Methodology**

The purpose of this research project is to determine the current requirements of federal and state law and current trends in the American fire service with regard to fire station design and construction for the Americans with Disabilities Act (ADA) and privacy and access, Unisex. Based on this research the writer will develop policy and guidelines to be implemented by the Department in its construction plan. The research methodology included historical, descriptive and evaluative research methods.

The first step was to determine the specific areas related to new and remodel fire station construction that the writer wanted to focus on in his assignment as the Department's Construction and Maintenance Division manager. The selected construction issues selected were the ADA and Unisex due to their impact on design and construction costs.

The second step was a literature review of the subject areas of ADA and Unisex and any specific reference to fire service facilities. The search involved the on-line catalogs of the following libraries; California State University, Long Beach – COAST and REFERENCE NETWORK, University of California, Irvine – ANTPAC, University of Southern California (USC) and associated schools – HOMER and FIRST SEARCH, and the National Emergency Training Center Learning Resource Center (LRC) – Online Card Catalog (OCC). For materials not immediately available in these libraries, the Interlibrary Loan Procedures were utilized to obtain materials through the writer's local library. A review was also completed of written documents and personal interviews with personnel of the Department.

Due to the increased resources of the Internet, non-library based sources were searched on the net. The search involved the following; LIBRARY NET and the websites of Federal Emergency Management Agency, the National Fire Protection Association, International Association of Firefighters, International Association of Fire Chiefs, United States Department of Justice, United States Access Board and Women in the Fire Service, Inc.

The third step was to analyze the literature using historical methodology to provide background of the writer's Department related to fire station design and construction with regard to the ADA and Unisex. The writer had the use of Department documents and Fire Captain Cindy Barbee as the Department's first-hired female firefighter, to provide background on the Unisex issue.

The fourth step was to determine, identify and assess the present using descriptive methodology the status of the ADA and Unisex issues in the American fire service with regard to remodels and new construction of fire stations. This was to allow the writer to consider any current design and construction practices being used in the writer's construction plan for the Department.

The fifth step was to use evaluative methodology to analyze and evaluate from the research what guidelines and policies could be established as part of the Department's construction plan to include facility-specific issues of the ADA and Unisex.

## **Limitations**

Before the literature review the writer believed that there would be extensive information regarding the ADA available and was uncertain regarding the Unisex issue and the applicable research of both issues to the American fire service. There was an over abundance of general research and informational material available related to the ADA. What the writer did find as a limitation to the research was the lack of ADA information regarding facilities directly applicable to the fire service.

### ADA Issue

Considering that fire stations continue to operate with what would be considered able-bodied employees as first responders, it was surprising to the writer that the operations portions, versus the administrative/clerical areas of fire stations, were not in some way exempt, or excepted when it came to compliance with the ADA. It appears in the development of the ADA legislation that the fire service and its first responder facilities, fire stations, received no special attention. There were no materials found in the LRC including all Applied Research Projects on file that contained any information regarding the ADA and fire station construction issues.

The writer's research revealed that two major fire service organizations; the International Association of Fire Chiefs (IAFC) and International Association of Firefighters were not involved with any educational or lobbying efforts with the current rulemaking revision proposal of the ADA. In fact, during a telephone interview with the Government Relations section of the IAFC, the IAFC was not only unaware of the ADA

as a fire service (fire station construction) issue, but of the current rulemaking proposal underway (A. Caldwell, personal communication, March 2000).

### Unisex Issue

There was minimal research material regarding the need to modify existing and design for new construction to provide separate facilities to meet the Unisex issue of the fire service. This issue seems to be driven from limited legislation on a state-by-state basis to meet requirements of general sanitation and working condition requirements for any employers with a mix of male and female employees.

## RESULTS

### **Answers to Research Questions**

Research Question 1. New Construction - The Department has partially met the ADA requirements for new construction with the few stations it has constructed since the 1992 implementation of the ADA. Through the respective project architects and the plan review process by the County Building and Safety Division, the Department has met the requirements for designated handicapped parking, path of travel curb ramping and entrances to new fire stations. Many of the new stations have a two-level height public counter in the front office area of the stations in addition to a single ADA compliant toilet room with male/female signage located off of the office. Other areas of the stations remain omitted from design considerations due to a lack of clarity on ADA compliance. This will be covered further in the Discussion section.

Remodel Construction – The Department is slowly making progress in applying ADA requirements to existing stations with regard to parking, building access and office areas. The future status of other interior alterations such as kitchen and bathroom remodels remains unclear due to the interpretation issue regarding the ADA requirements. This will be covered further in the Discussion section.

Research Question 2. New Construction - The Department has been slow to incorporate in the design phase of new stations any construction feature to readily address the Unisex needs of the Department. The first Unisex design changes for new construction occurred in 1998 for two fire stations that were currently under construction.

Remodel Construction – The extent of remodel or accommodation in the past for Unisex purposes have been door locks, signage, curtains and some partition walls.

Research Question 3. The American fire service seems to be unaware of the requirements and implications of the ADA. The issue of Unisex in fire station design and construction has minimal material published about it. After review of the limited articles from fire station designers/architects and discussions with several architects doing fire station design work, in general the issue of fire station design and construction for Unisex remains a low priority (M. McGrath, personal communication, March, 2000).

Research Question 4. The Department is attempting to establish a standard fire station design program based on three different fire stations sizes; small, medium and large. This new standard design program will specifically address compliance with the ADA and Unisex facility criteria (see Appendices).

## **DISCUSSION**

### **Study Results**

#### **ADA Issue**

The amount of material available for the ADA issue including the history, legislation and implementation was overwhelming to the writer and needed to be limited. A draft Reference List in ARP format with just the ADA materials exceeded eight pages. In consideration of criteria applicable to fire stations for both the alterations (remodel) and new construction there were minimal references. Either by underestimating the true impact of the ADA on the fire service by the fire service, and/or the lack of understanding by non-fire service policymakers, there remains a lack of acknowledgment and a course of action regarding the ADA by the American fire service.

The original rush to adopt a federal law was evident in the research. Repeatedly, the fact that only a 12-month period was given to formulate guidelines and standards for the eventual public law left many groups unable to facilitate their input (AIA, 2000, January). This may explain why the fire service with regard to its operational first responder fire stations were omitted from being exempt or considered for special guidelines.

When discussing the implementation of the ADA in the fire service with the Access Board's Technical Assistance Information Line, the writer was told that the intent of the ADA was to impact all buildings built now and in the future. "The result will be like a moving iceberg, slow, almost imperceptible, but relentless" (Wehman, 1993, p. 15).

The fact that persons with disabilities and meeting ADA criteria would not be assigned to fire stations as first responders made no difference to the interviewed

representative of the Access Board. Fire stations too, had to build for ADA accommodations, even if it compromised able-bodied personnel such as lowered kitchen counter heights (“Dana”, personnel communication, March 24, 2000; G. Anthony, personal communications, March 12, 2000).

The writer was even provided information by the Technical Assistance Helpline of the United States Department of Justice that was in conflict with the very same questions and answers having to do with kitchen and sleeping quarters that were asked of the Technical Assistance Information Line by the Access Board (“Jim”, personal communication, March 27, 2000). It is not the writer’s position to say one source was correct and the other was not, only to demonstrate that there are different interpretations by federal agencies of the very same federal act.

There is a general lack of clarity to the specifics of the ADA. Although the ADA addresses new construction and alterations in existing construction, feature by feature, how many and to what extent they are to be applied to what buildings is questionable. Even as early as 1995, the Advisory Commission in Intergovernmental Relations reporting on unfunded mandates, such as the ADA, reported, “The ADA was not well thought out. Not any big city, mid-size city or small city mayor will tell you they have any idea what to do to comply. The ADA is a mess” (Thompson Publishing Group, 2000).

The ADA and California Building Code subject matter expert, attorney Michael P. Gibbens, states he uses no information as “fact” unless he can provide six documented contacts and verifications for each topic inquiry due to the variety of answers and information provided by the federal agencies (Gibbens, 2000).

Todd Gritch of the AIA states that, "It is critical that the language used in the guidelines (ADAAG) gives clear and certain requirements to the users of the document. The past has shown us the importance of clarity in the rules for obtaining the greatest degree of compliance with the least amount confusion" (AIA, 2000, January, p. 1).

This lack of understanding by entities to implement the ADA is supported in situations like the recent filing of the lawsuit in Texas where there was a conflict in acceptance of State ADA standards versus Federal ADA standards. The architect relied on the State standards and was found not to be in compliance with the ADA based on a complaint. The AIA feels, "In order to obtain compliance with the ADA, its statutory requirements must be understandable and achievable" (AIA, 1999, p. 2).

The entire City of Toledo, Ohio, was mandated by an out-of-court settlement with the Department of Justice in 1999 to provide full Title II compliance to City facilities including the City's fire stations based on complaints of slow and an overall non-compliance of the ADA (DOJ, 1999, August).

### Unisex Issue

The availability of material related to the Unisex facility issue for fire stations was also limited. The State of California regulation for five or more employees is sufficient to push forward a prioritized schedule of remodels and all new construction to meet this legal and morale-improving effort by the writer's Department. Due to the unknown gender balance of future fire station company staffing, the writer believes that at some time all of the Department's fire stations, including single company stations should be remodeled to a Unisex facility standard.

The proposed “Los Angeles County Design” for addressing the Unisex facility issue is detailed in Appendices B and C. This method of providing home-style individual bathrooms and sleeping rooms is supported by the Women in the Fire Service, Inc. and many private designer/architects for efficient and flexible use of fire station residential space (FEMA, 1993, January; M. McGrath, personal communications, March 2000).

### **Interpretation**

The writer is astonished by his perception of the lack of interest in the ADA and Unisex issues from a facilities standpoint in the American fire service. The writer anticipated seeing that his Department was slow to react to these two legal mandates (federal law and state regulation), but was unpleasantly surprised that his Department was in fact taking more of a lead with these issues than most all fire organizations in the United States.

Perhaps the writer’s opinion is skewed in the fact that his Department, as stated in the Introduction, is scheduled to design and construct approximately 15 fire stations within the next five years as the beginning of a major construction and remodel boom. In addition to at least 30 remodels this is an estimated expenditure of millions of dollars for facilities. Many fire service organizations throughout the United States may have chief officers who go through their entire careers without a single fire station construction project. The writer has at least 45 construction projects in his career.

Any avoidance of a single ADA complaint or citation for violation of California State regulations and any resulting court cases would seem well worth the effort to research and plan into current and future fire station design due to; (1) the legal

mandates of the legislative entities, (2) the perception and reality by organization personnel that management is in fact supportive of change to comply with the law and that men and women both deserve privacy, (3) the benefit of morale of all employees that their fire organization will not be the status quo, and (4) as executive level fire service managers, “it is the right thing to do” (Author, 2000).

### **Organizational Implications**

The research for this project has resulted in a factual literature review and sources to substantiate the writer’s case to upper level management in the Department the need for a more assertive fire station construction plan to better address the issues of ADA compliance and Unisex. Although not specific to the fire service, the research will permit the writer to attempt to clarify the ADA, as it should be included in the fire service with local building officials. Finally, this project will enable the writer in his assignment as the Department’s Construction and Maintenance Division manager to develop a revised construction plan to address these issues.

## **RECOMMENDATIONS**

The recommendations as a result of this project are to provide to the writer and the Department the necessary criteria to develop a revised remodel and new construction plan. This plan will provide a consistent and standardized design program to incorporate the legal requirements of the ADA and state regulations as well as to provide functional and cost effective design and construction features for daily staffing of male and female personnel at the Department’s fire stations. The research and

results of this project may also serve other fire service organizations for implementation of the ADA and adaptations to accommodate privacy and access.

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*Appendices Not Included. Please visit the Learning Resource Center on the Web at <http://www.lrc.fema.gov/> to learn how to obtain this report in its entirety through Interlibrary Loan.*